

cgctcttacc tagtagaggt tgagtgaatt tcttgacttg tttctcctat tgggtgatct 60
 cttaaaatat taaattcaaa atcaaagtat atattttaca atg aag tct tct ttc 115

Met Lys Ser Ser Phe

1 5

ccc aag ttt gta ttt tct aca ttt gct att ttc cct ttg tct atg att 163
 Pro Lys Phe Val Phe Ser Thr Phe Ala Ile Phe Pro Leu Ser Met Ile

10 15 20

gct acc gag aca gtt ttg gat tca agt gcg agt ttc gat ggg aat aaa 211
 Ala Thr Glu Thr Val Leu Asp Ser Ser Ala Ser Phe Asp Gly Asn Lys

25 30 35

aat ggt aat ttt tca gtt cgt gag agt cag gaa gat gct gga act acc 259
 Asn Gly Asn Phe Ser Val Arg Glu Ser Gln Glu Asp Ala Gly Thr Thr

40 45 50

tac cta ttt aag gga aat gtc act cta gaa aat att cct gga aca ggc 307
 Tyr Leu Phe Lys Gly Asn Val Thr Leu Glu Asn Ile Pro Gly Thr Gly

55 60 65

aca gca atc aca aaa agc tgt ttt aac aac act aag ggc gat ttg act 355
 Thr Ala Ile Thr Lys Ser Cys Phe Asn Asn Thr Lys Gly Asp Leu Thr

70 75 80 85

FIG. 1A

ttc aca ggt aac ggg aac tct cta ttg ttc caa acg gtg gat gca ggg 403
Phe Thr Gly Asn Gly Asn Ser Leu Leu Phe Gln Thr Val Asp Ala Gly
90 95 100

act gta gca ggg gct gct gtt aac agc agc gtg gta gat aaa tct acc 451
Thr Val Ala Gly Ala Ala Val Asn Ser Ser Val Val Asp Lys Ser Thr
105 110 115

acg ttt ata ggg ttt tct tcg cta tct ttt att gcg tct cct gga agt 499
Thr Phe Ile Gly Phe Ser Ser Leu Ser Phe Ile Ala Ser Pro Gly Ser
120 125 130

tcg ata act acc ggc aaa gga gcc gtt agc tgc tct acg ggt agc ttg 547
Ser Ile Thr Thr Gly Lys Gly Ala Val Ser Cys Ser Thr Gly Ser Leu
135 140 145

agt ttg aca aaa aat gtc agt ttg ctc ttc agc aaa aac ttt tca acg 595
Ser Leu Thr Lys Asn Val Ser Leu Leu Phe Ser Lys Asn Phe Ser Thr
150 155 160 165

gat aat ggc ggt gct atc acc gca aaa act ctt tca tta aca ggg act 643
Asp Asn Gly Gly Ala Ile Thr Ala Lys Thr Leu Ser Leu Thr Gly Thr
170 175 180

aca atg tca gct ctg ttt tct gaa aat acc tcc tca aag aaa ggc gga 691
Thr Met Ser Ala Leu Phe Ser Glu Asn Thr Ser Ser Lys Lys Gly Gly
185 190 195

FIG. 1B

gcc att cag act tcc gat gcc ctt acc att act gga aac caa ggg gaa 739
 Ala Ile Gln Thr Ser Asp Ala Leu Thr Ile Thr Gly Asn Gln Gly Glu
 200 205 210

gtc tct ttt tct gac aat act tct tcg gat tct gga gct gca att ttt 787
 Val Ser Phe Ser Asp Asn Thr Ser Ser Asp Ser Gly Ala Ala Ile Phe
 215 220 225

aca gaa gcc tcg gtg act att tct aat aat gct aaa gtt tcc ttt att 835
 Thr Glu Ala Ser Val Thr Ile Ser Asn Asn Ala Lys Val Ser Phe Ile
 230 235 240 245

gac aat aag gtc aca gga gcg agc tcc tca aca acg ggg gat atg tca 883
 Asp Asn Lys Val Thr Gly Ala Ser Ser Ser Thr Thr Gly Asp Met Ser
 250 255 260

gga ggt gct atc tgt gct tat aaa act agt aca gat act aag gtc acc 931
 Gly Gly Ala Ile Cys Ala Tyr Lys Thr Ser Thr Asp Thr Lys Val Thr
 265 270 275

ctc act gga aat cag atg tta ctc ttc agc aac aat aca tcg aca aca 979
 Leu Thr Gly Asn Gln Met Leu Leu Phe Ser Asn Asn Thr Ser Thr Thr
 280 285 290

gcg gga gga gct atc tat gtg aaa aag ctc gaa ctg gct tcc gga gga 1027
 Ala Gly Gly Ala Ile Tyr Val Lys Lys Leu Glu Leu Ala Ser Gly Gly
 295 300 305

FIG. 1C

ctt acc cta ttc agt aga aat agt gtc aat gga ggt aca gct cct aaa 1075
 Leu Thr Leu Phe Ser Arg Asn Ser Val Asn Gly Gly Thr Ala Pro Lys
 310 315 320 325

ggt gga gcc ata gct atc gaa gat agt ggg gaa ttg agt tta tcc gcc 1123
 Gly Gly Ala Ile Ala Ile Glu Asp Ser Gly Glu Leu Ser Leu Ser Ala
 330 335 340

gat agt ggt gac att gtc ttt tta ggg aat aca gtc act tct act act 1171
 Asp Ser Gly Asp Ile Val Phe Leu Gly Asn Thr Val Thr Ser Thr Thr
 345 350 355

cct ggg acg aat aga agt agt atc gac tta gga acg agt gca aag atg 1219
 Pro Gly Thr Asn Arg Ser Ser Ile Asp Leu Gly Thr Ser Ala Lys Met
 360 365 370

aca gct ttg cgt tct gct gct ggt aga gcc atc tac ttc tat gat ccc 1267
 Thr Ala Leu Arg Ser Ala Ala Gly Arg Ala Ile Tyr Phe Tyr Asp Pro
 375 380 385

ata act aca gga tca tcc aca aca gtt aca gat gtc tta aaa gtt aat 1315
 Ile Thr Thr Gly Ser Ser Thr Thr Val Thr Asp Val Leu Lys Val Asn
 390 395 400 405

gag act ccg gca gat tct gca cta caa tat aca ggg aac atc atc ttc 1363
 Glu Thr Pro Ala Asp Ser Ala Leu Gln Tyr Thr Gly Asn Ile Ile Phe
 410 415 420

FIG. 1D

aca gga gaa aag tta tca gag aca gag gcc gca gat tct aaa aat ctt 1411
 Thr Gly Glu Lys Leu Ser Glu Thr Glu Ala Ala Asp Ser Lys Asn Leu
 425 430 435

act tcg aag cta cta cag cct gta act ctt tca gga ggt act cta tct 1459
 Thr Ser Lys Leu Leu Gln Pro Val Thr Leu Ser Gly Gly Thr Leu Ser
 440 445 450

tta aaa cat gga gtg act ctg cag act cag gca ttc act caa cag gca 1507
 Leu Lys His Gly Val Thr Leu Gln Thr Gln Ala Phe Thr Gln Gln Ala
 455 460 465

gat tct cgt ctc gaa atg gac gta gga act act cta gaa cct gct gat 1555
 Asp Ser Arg Leu Glu Met Asp Val Gly Thr Thr Leu Glu Pro Ala Asp
 470 475 480 485

act agc acc ata aac aat ttg gtc att aac atc agt tct ata gac ggt 1603
 Thr Ser Thr Ile Asn Asn Leu Val Ile Asn Ile Ser Ser Ile Asp Gly
 490 495 500

gca aag aag gca aaa ata gaa acc aaa gct acg tca aaa aat ctg act 1651
 Ala Lys Lys Ala Lys Ile Glu Thr Lys Ala Thr Ser Lys Asn Leu Thr
 505 510 515

tta tct gga acc atc act tta ttg gac ccg acg ggc acg ttt tat gaa 1699
 Leu Ser Gly Thr Ile Thr Leu Leu Asp Pro Thr Gly Thr Phe Tyr Glu
 520 525 530

FIG. 1E

SCANNED

aat cat agt tta aga aat cct cag tcc tac gac atc tta gag ctc aaa 1747

Asn His Ser Leu Arg Asn Pro Gln Ser Tyr Asp Ile Leu Glu Leu Lys

535

540

545

gct tct gga act gta aca agc acc gca gtg act cca gat cct ata atg 1795

Ala Ser Gly Thr Val Thr Ser Thr Ala Val Thr Pro Asp Pro Ile Met

550

555

560

565

ggc gag aaa ttc cat tac ggc tat cag gga act tgg ggc cca att gtt 1843

Gly Glu Lys Phe His Tyr Gly Tyr Gln Gly Thr Trp Gly Pro Ile Val

570

575

580

tgg ggg aca ggg gct tct acg act gca acc ttc aac tgg act aaa act 1891

Trp Gly Thr Gly Ala Ser Thr Thr Ala Thr Phe Asn Trp Thr Lys Thr

585

590

595

ggc tat att cct aat ccc gag cgt atc ggc tct tta gtc cct aat agc 1939

Gly Tyr Ile Pro Asn Pro Glu Arg Ile Gly Ser Leu Val Pro Asn Ser

600

605

610

tta tgg aat gca ttt ata gat att agc tct ctc cat tat ctt atg gag 1987

Leu Trp Asn Ala Phe Ile Asp Ile Ser Ser Leu His Tyr Leu Met Glu

615

620

625

act gca aac gaa ggg ttg cag gga gac cgt gct ttt tgg tgt gct gga 2035

Thr Ala Asn Glu Gly Leu Gln Gly Asp Arg Ala Phe Trp Cys Ala Gly

630

635

640

645

FIG. 1F

tta tct aac ttc ttc cat aag gat agt aca aaa aca cga cgc ggg ttt 2083
 Leu Ser Asn Phe Phe His Lys Asp Ser Thr Lys Thr Arg Arg Gly Phe
 650 655 660

cgc cat ttg agt ggc ggt tat gtc ata gga gga aac cta cat act tgt 2131
 Arg His Leu Ser Gly Gly Tyr Val Ile Gly Gly Asn Leu His Thr Cys
 665 670 675

tca gat aag att ctt agt gct gca ttt tgt cag ctc ttt gga aga gat 2179
 Ser Asp Lys Ile Leu Ser Ala Ala Phe Cys Gln Leu Phe Gly Arg Asp
 680 685 690

aga gac tac ttt gta gct aag aat caa ggt aca gtc tac gga gga act - 2227
 Arg Asp Tyr Phe Val Ala Lys Asn Gln Gly Thr Val Tyr Gly Gly Thr
 695 700 705

ctc tat tac cag cac aac gaa acc tat atc tct ctt cct tgc aaa cta 2275
 Leu Tyr Tyr Gln His Asn Glu Thr Tyr Ile Ser Leu Pro Cys Lys Leu
 710 715 720 725

cgg cct tgt tcg ttg tct tat gtt cct aca gag att cct gtt ctc ttt 2323
 Arg Pro Cys Ser Leu Ser Tyr Val Pro Thr Glu Ile Pro Val Leu Phe
 730 735 740

tca gga aac ctt agc tac acc cat acg gat aac gat ctg aaa acc aag 2371
 Ser Gly Asn Leu Ser Tyr Thr His Thr Asp Asn Asp Leu Lys Thr Lys
 745 750 755

FIG. 1G

tat aca aca tat cct act gtt aaa gga agc tgg ggg aat gat agt ttc 2419
Tyr Thr Thr Tyr Pro Thr Val Lys Gly Ser Trp Gly Asn Asp Ser Phe
760 765 770

gct tta gaa ttc ggt gga aga gct ccg att tgc tta gat gaa agt gct 2467
Ala Leu Glu Phe Gly Gly Arg Ala Pro Ile Cys Leu Asp Glu Ser Ala
775 780 785

cta ttt gag cag tac atg ccc ttc atg aaa ttg cag ttt gtc tat gca 2515
Leu Phe Glu Gln Tyr Met Pro Phe Met Lys Leu Gln Phe Val Tyr Ala
790 795 800 805

cat cag gaa ggt ttt aaa gaa cag gga aca gaa gct cgt gaa ttt gga 2563
His Gln Glu Gly Phe Lys Glu Gln Gly Thr Glu Ala Arg Glu Phe Gly
810 815 820

agt agc cgt ctt gtg aat ctt gcc tta cct atc ggg atc cga ttt gat 2611
Ser Ser Arg Leu Val Asn Leu Ala Leu Pro Ile Gly Ile Arg Phe Asp
825 830 835

aag gaa tca gac tgc caa gat gca acg tac aat cta act ctt ggt tat 2659
Lys Glu Ser Asp Cys Gln Asp Ala Thr Tyr Asn Leu Thr Leu Gly Tyr
840 845 850

act gtg gat ctt gtt cgt agt aac ccc gac tgt acg aca aca ctg cga 2707
Thr Val Asp Leu Val Arg Ser Asn Pro Asp Cys Thr Thr Thr Leu Arg
855 860 865

FIG. 1H

att agc ggt gat tct tgg aaa acc ttc ggt acg aat ttg gca aga caa 2755
 Ile Ser Gly Asp Ser Trp Lys Thr Phe Gly Thr Asn Leu Ala Arg Gln
 870 875 880 885

gct tta gtc ctt cgt gca ggg aac cat ttt tgc ttt aac tca aat ttt 2803
 Ala Leu Val Leu Arg Ala Gly Asn His Phe Cys Phe Asn Ser Asn Phe
 890 895 900

gaa gcc ttt agc caa ttt tct ttt gaa ttg cgt ggg tca tct cgc aat 2851
 Glu Ala Phe Ser Gln Phe Ser Phe Glu Leu Arg Gly Ser Ser Arg Asn
 905 910 915

tac aat gta gac tta gga gca aaa tac caa ttc taa tgcgtagct 2897
 Tyr Asn Val Asp Leu Gly Ala Lys Tyr Gln Phe
 920 925

ttggtaaaga gctccataca tcgaaggga aagagctttt aagatttctt gaaggctctt 2957
 ttcgatttcg atttccattt tagtgttttg ctaaaacact ttc 3000

FIG. 1I

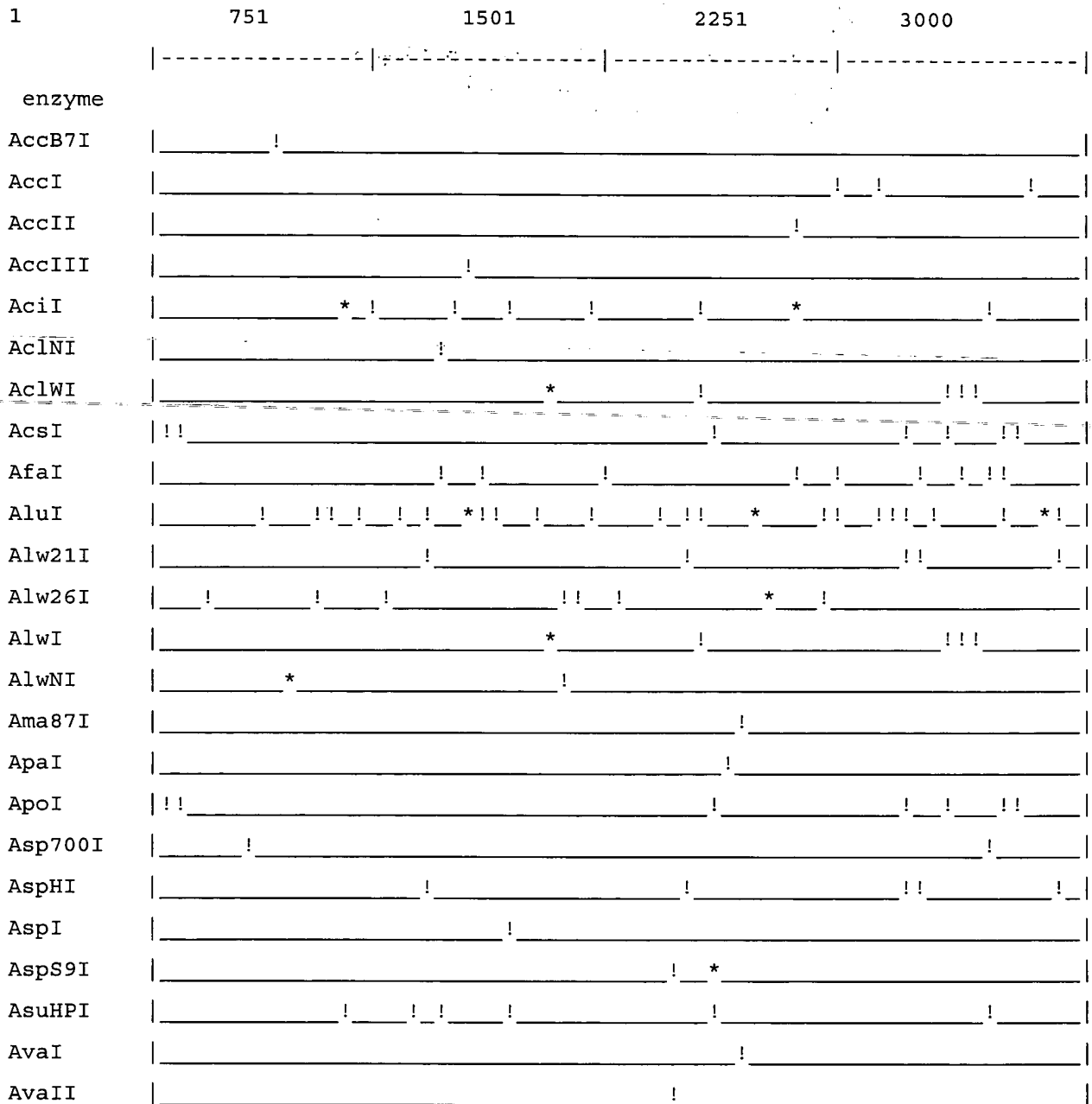


FIG. 2A

BamHI	_____!_____
BanII	_____!_____!_____!_____!
BbsI	_!_____
Bbv12I	_____!_____!_____!_____!
BbvI	_____ *_!_____!_____!_____!_____!
BcgIB	_____!_____
BcgIC	_____!_____
BfaI	!_____!_____!_____!_____*
BfmI	_____!_____!_____!_____!_____!
Bme18I	_____!_____
BmyI	_____!_____!_____!_____!_____!
BpiI	_!_____
BpmI	_____!_____!_____!_____!
Bpu14I	_____!_____
BpuAI	_!_____
BsaBI	_____!_____
BsaI	_____!_____
BsaJI	_____!!_____!_____
BsaMI	_____!_____!_____
BsaWI	_____!_____
Bsc4I	!_____ *_!_____!_____!_____!!
BscBI	_____!_____!_____!_____!_____!_____!_____!_____!_____!_____!
BscCI	_____!_____!_____
Bse118I	_____!_____
Bse1I	_____!_____!!_____!_____!_____*
Bse8I	_____!_____
BseAI	_____!_____
BseDI	_____!!_____!_____

FIG. 2B

BseNI	_____ ! ____ !! _____ *
BseRI	_____ ! ____ ! ____ ! _____
BsgI	_____ ! _____ ! _____
Bsh1236I	_____ ! _____ ! _____
Bsh1365I	_____ ! _____ ! _____
BsiBI	_____ ! _____
BsiCI	_____ ! _____
BsiHKAI	_____ ! _____ ! _____ ! _____ ! _____
BsiLI	_____ ! ____ ! _____ ! _____
BsiMI	_____ ! _____
BsiSI	_____ ! _____ ! _____ ! _____
BsiYI	! ____ * ! _____ ! _____ ! _____
BsiZI	_____ ! _____ * _____
BslI	! ____ * ! _____ ! _____ ! _____
BsmAI	____ ! ____ ! ____ ! _____ ! _____ ! _____ * ____ ! _____
BsmBI	_____ ! _____ ! _____
BsmFI	_____ ! ____ ! _____ ! _____ ! _____
BsmI	_____ ! _____ ! _____
Bsp119I	_____ ! _____
Bsp1286I	_____ ! _____ ! _____ ! _____ ! _____ ! _____
Bsp13I	_____ ! _____
BspEI	_____ ! _____
BspHI	_____ ! _____
BspLI	_____ ! ____ ! _____ ! _____ * ____ * _____ ! ____ ! _____
BspMI	_____ ! _____
BsrBRI	_____ ! _____
BsrFI	_____ ! _____
BsrI	_____ ! ____ ! _____ *

FIG. 2C

BsrSI	_____ ! ____ !! _____ *
BssAI	_____ ! _____
BssSI	_____ ! _____
BstT1I	_____ ! _____
Bst1107I	_____ ! _____
Bst2BI	_____ ! _____
Bst2UI	_____ ! _____ ! _____
Bst71I	_____ * ! _____ ! _____ ! _____
BstBI	_____ ! _____
BstDEI	_____ ! _____ ! _____ ! _____ * _____ ! ! ! ! _____
BstEII	_____ ! _____
BstHPI	_____ ! _____
BstNSI	_____ ! _____
BstOI	_____ ! _____ ! _____ ! _____
BstPI	_____ ! _____
BstSFI	_____ ! _____ ! ! ! ! _____ ! _____
BstUI	_____ ! _____
BstX2I	_____ ! _____ ! ! _____
BstXI	_____ ! _____ ! _____
BstYI	_____ ! _____ ! ! _____
BstZ17I	_____ ! _____
Bsu6I	_____ ! _____ ! _____ ! ! ! ! _____
Cac8I	_____ ! _____
CbiI	_____ ! _____
Cfr10I	_____ ! _____
Cfr13I	_____ ! _____ * _____
Csp45I	_____ ! _____
DdeI	_____ ! _____ ! _____ ! _____ ! _____ * _____ ! ! ! ! _____

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FIG. 2D

DpnI	_____ * _____ ! _____ ! _____ !! _____
DraI	_____ ! _____ ! _____ ! _____
DraII	_____ ! _____ ! _____ ! _____
DrdI	_____ ! _____ ! _____ ! _____ ! _____
DseDI	_____ ! _____ ! _____ ! _____ ! _____
Eam1104I	_____ ! _____ ! _____ ! _____ ! _____
EarI	_____ ! _____ ! _____ ! _____ ! _____
Eco130I	_____ ! _____ ! _____ ! _____ ! _____
Eco24I	_____ ! _____ ! _____ ! _____ ! _____
Eco31I	_____ ! _____ ! _____ ! _____ ! _____
Eco47I	_____ ! _____ ! _____ ! _____ ! _____
Eco57I	_____ ! _____ ! _____ ! _____ ! _____
Eco88I	_____ ! _____ ! _____ ! _____ ! _____
Eco91I	_____ ! _____ ! _____ ! _____ ! _____
EcoNI	! _____ !! _____ ! _____ ! _____ ! _____
EcoO65I	_____ ! _____ ! _____ ! _____ ! _____
EcoRI	_____ ! _____ ! _____ ! _____ ! _____
EcoRII	_____ ! _____ ! _____ ! _____ ! _____
EcoT14I	_____ ! _____ ! _____ ! _____ ! _____
EcoT22I	_____ ! _____ ! _____ ! _____ ! _____
EcoT38I	_____ ! _____ ! _____ ! _____ ! _____
ErhI	_____ ! _____ ! _____ ! _____ ! _____
Esp1396I	_____ ! _____ ! _____ ! _____ ! _____
Esp3I	_____ ! _____ ! _____ ! _____ ! _____
FauI	_____ ! _____ ! _____ ! _____ ! _____
Fnu4HI	_____ * _____ ! _____ ! _____ ! _____ ! _____

FIG. 2E

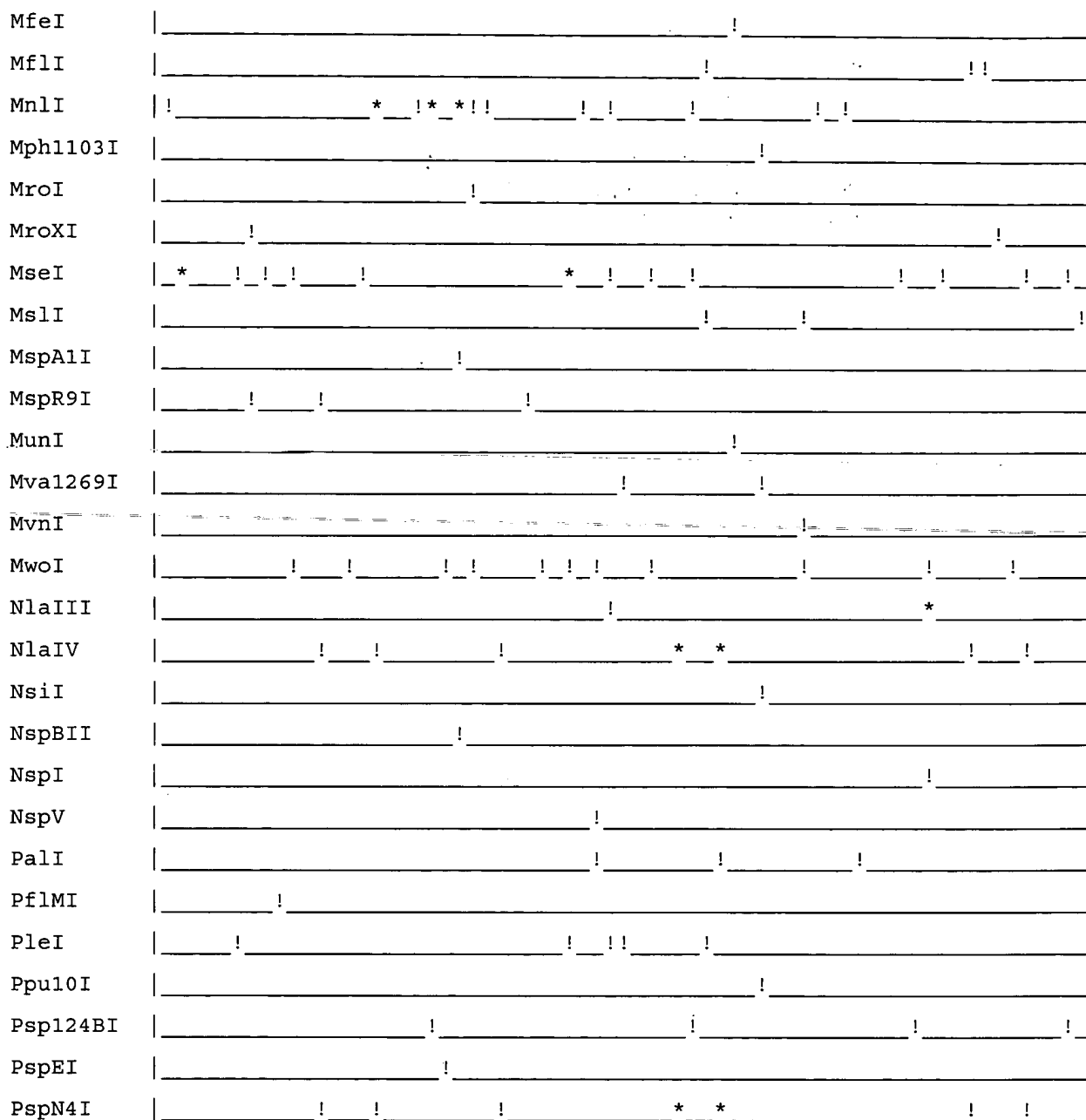


FIG. 2G

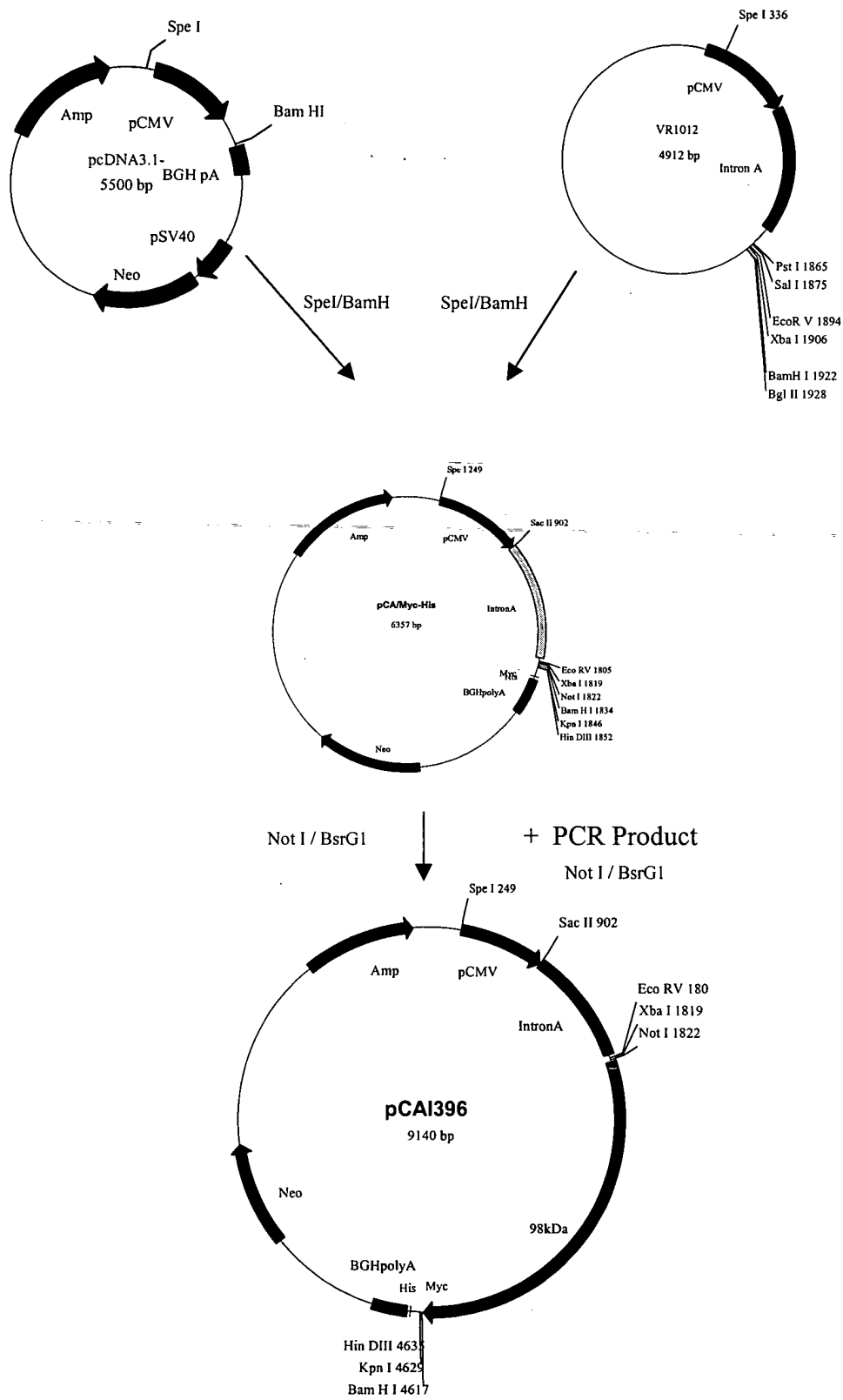


FIG. 3

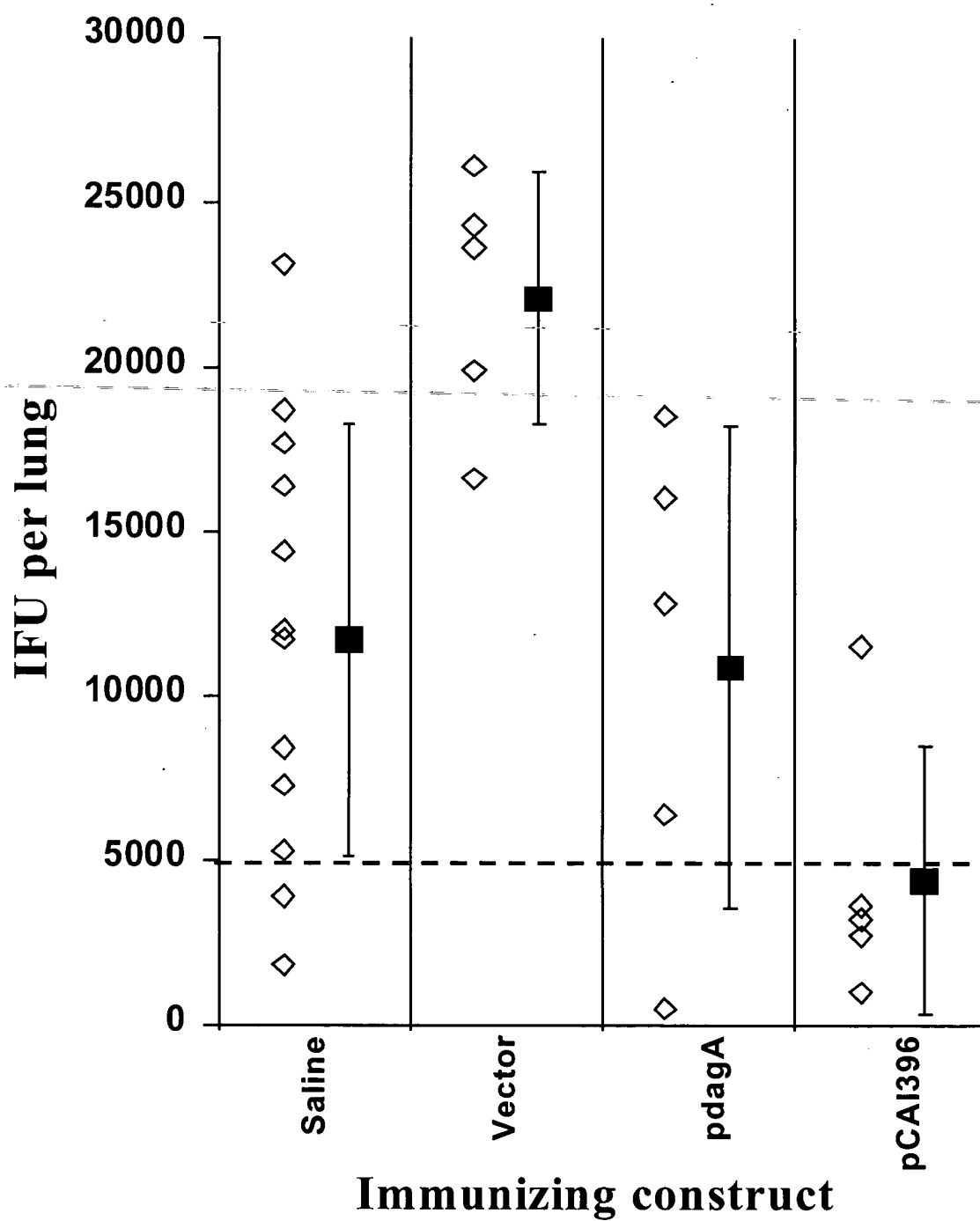


FIG. 4